



## **Role of organic acids on desorption of Copper and Zinc from soils and effect of organic fertilizer on it**

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Metal desorption phenomena in soils is important in determining the bioavailability of soil metals to plants. Although there have been many studies of Cu and Zn desorption by soils, however, few have examined the competitive desorption kinetics of Cu and Zn from soils. In order to increase our understanding, desorption kinetics of Cu and Zn from ten surface soils from the Western Iran have been examined. The surface soils used in this study were obtained in a way to vary widely in physicochemical properties. Desorption experiments were conducted with oxalic acid for 1008 h. The released amount of Cu and Zn were markedly different between the experimental soils, indicating their differing capacities for the continuous supply of Cu and Zn to the soil solution. According to the kinetic parameters of used models, copper was less readily desorbed (except soils no. 3 and 5 with very little difference) from the soils than Zn. Our results showed that, zero-order, first-order, parabolic diffusion and two constant rate equations were the best fitted equations among five kinetic models used to describe Cu and Zn desorption from studied soils and for less conformity by simple Elovich. The low-molecular-weight organic acids (LMWOAs) such as oxalic acid commonly present in root exudates may influence the mobility and bioavailability of Cu and Zn in soils through the formation of soluble  $M^{+2}$ -organic complexes in the soil rhizosphere. In the presence of organic fertilizer, desorption of Cu and Zn changed.

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